

Remarks

Reconsideration of the above-identified application in view of the present amendment is respectfully requested. By the present amendment, claims 1, 17, 32, and 42 have been amended to recite that the biodegradable material is formed as at least one of a fiber, a continuous matrix, a filler, or a cellular material, the fiber, the continuous matrix, the filler, or the cell material consisting essentially of a polyhydroxyalkanoate resin. Support for this limitation can be found in claims 3, 10, and 13.

Below is a discussion of the 35 U.S.C. §103 rejection of claims 1, 10-13 and 32, the 35 U.S.C. §103 rejection of claims 3, 7, 8, 34, 35, 39, and 40, the 35 U.S.C. §103 rejection of claims 9 and 14-16, the 35 U.S.C. §103 rejection of claims 4-6, 36-38, 39 and 41, the 35 U.S.C. §103 rejection of claims 17, 27-31, and 42-46, the 35 U.S.C. §103 rejection of claim 19, the 35 U.S.C. §103 rejection of claims 20, 24, and 25, and the 35 U.S.C. §103 rejection of claims 21-23 and 26.

1. 35 U.S.C. §103 rejection of claims 1, 10-13 and 32.

Claims 1, 10-13, and 32 were rejected under 35 U.S.C. §103 as being anticipated by U.S. Patent No. 5,939,467 to Wnuk et al. in view of U.S. Patent No. 6,342,402 to Buchanan et al. The Office Action states that Wnuk et al. discloses a biodegradable material consisting essentially of a PHA resin and that Buchanan shows this product being used as a vehicle component.

Claim 1 is patentable over Wnuk et al. and Buchanan et al. because Wnuk et al. and Buchanan et al. do not teach or suggest a biodegradable material is formed as at least one of a fiber, a continuous matrix, a filler, or a cellular material; the fiber, the continuous matrix, the filler, or the cell material consisting essentially of a polyhydroxyalkanoate resin.

Wnuk et al. teach polymer compositions that are derived from blends of various biodegradable polymers. (Column 20, lines 21-22). These polymer compositions can be melt processed into films, fibers, and non-wovens. (Abstract). The polymer compositions include a polyhydroxyalkanoate (PHA) polymer that is blended with another polymer. Column 24, lines 3-5 and column 26, third complete paragraph, both noted in the Office Action, describe formulations of various blends of PHAs and other polymers. Wnuk et al. do not teach or suggest that the films, fibers, and non-wovens are formed from polymer compositions "consisting essentially of a polyhydroxyalkanoate resin".

The transition phrase "consists essentially of" as discussed in the MPEP at section 2111.03 limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristics of the claimed invention. (emphasis added in the MPEP). The polymers blended with the PHAs taught in Wnuk et al., however, affect the basic and novel characteristics of the PHAs. Particularly, column 24, lines 3-5, which are noted in the Office Action, suggest the additional polymer imparts melt strength to the PHA it is blended with. Thus, films, fibers, and non-wovens taught in Wnuk et al. are formed from a blend of polymers a portion of which is not a polyhydroxyalkanoate; and, therefore, such films, fibers, and non-wovens taught in Wnuk et al. do not consist essentially of a polyhydroxyalkanoate.

Buchanan et al. teach cellulose esters can form binary or ternary blends with aliphatic polyesters and aliphatic-aromatic copolyesters. (Column 7, lines 25-40). One type of aliphatic polyester listed is a polyhydroxyalkanoate. (Column 10, lines 15-31). Biodegradable additives for the binary and ternary blends can include microcrystalline cellulose and carbohydrates. (Column 10, lines 58-63). The blends can be used in molded parts, non-wovens, wovens and foamed objects, such as automotive trim. (Column 14, lines 41-45). One example of such a part is listed as automotive trim. (Column 15, lines 21).

The fiber, continuous matrix, filler, or cellular material recited in claim 1, however, does not comprise a blend of cellulose esters and polyhydroxyalkanoates. Claim 1 recites that the fiber, continuous matrix, filler, or cellular material consists essentially of a polyhydroxyalkanoate resin. In contrast, Buchanan et al. teach that the polyhydroxyalkanoate is blended with a cellulose ester and that this blend can be used as a fiber or in a composite. Accordingly, Buchanan et al. do not teach a fiber, continuous matrix, filler, or cellular material that consists essentially of the polyhydroxyalkanoate resin.

Thus, Wnuk et al. in view of Buchanan et. al. do not teach all of the limitations of claim 1. Therefore, withdrawal of the rejection of claim 1 is respectfully requested.

Claims 10-12 depend either directly or indirectly from claim 1 and therefore should be allowable because of the aforementioned deficiencies of the rejection with respect to claim 1 and the and because of the specific limitations recited in claims 10-12.

Claim 32 recites limitations similar to the limitations of claim 1 and therefore should be allowable because of the aforementioned deficiencies of the rejection with respect to claim 1 and because of the specific limitations recited in claim 32.

2. 35 U.S.C. §103 rejection of claims 3, 7, 8, 34, 35, 39, and 40.

Claims 3, 7, 8, 34, 35, 39, and 40 were rejected under 35 U.S.C. §103 as being unpatentable over Wnuk et al. in view of Buchanan et al. and Noda et al.

Claims 3 and 34 depend respectfully from claims 1 and 32 and recite the limitation that the vehicle component is made from a composite, the composite comprising a continuous matrix of the polyhydroxyalkanoate resin reinforced with a biodegradable fiber.

The Office Action suggests that Wnuk et al. in view of Buchanan et al. do not disclose a PHA resin and a biodegradable fiber, while Noda shows this fiber. The motivation to combine the teachings of Noda with Wnuk et al. and Buchanan et al.

provided in the Office Action is that it would have been obvious to one with ordinary skill in the art at the time the invention was made to include these arrangements to provide increased biodegradability, thus aiding the environment when it is finally discarded.

Claims 3 and 34 are patentable over Wnuk et al. in view of Buchanan et al. and Noda et al. because of the aforementioned deficiencies in the rejection with respect to claims 1 and 32. Additionally, claims 3 and 34 are allowable over Wnuk et al. in view of Buchanan et al. and Noda et al. because the motivation provided by the Office Action to combine the teachings of Noda et al. with Wnuk et al. and Buchanan et al. is mere speculation at best and is not supported by Wnuk et al., Buchanan et al. and Noda et al.

Wnuk et al. Buchanan et al., and Noda do not teach or suggest that the addition of "wood pulp" increases the biodegradability of the material as suggested by the Office Action or that it is desirable to increase the biodegradability of the biodegradable material. With respect to this statement in the Office Action, the Applicants respectfully request that the Examiner identify where in Noda et al. it is suggested that adding wood pulp to a blend of PHAs and other polymers, as taught in Wnuk et al. and Buchanan et al., increases biodegradability or at the very least can be used with such blend of PHAs and other polymers.

Thus, Wnuk et al. in view of Buchanan et al. and Noda et al. do not teach all the limitations of claims 3 and 34 and withdrawal of the rejections of claims 3 and 34 are respectfully requested.

Claims 7, 8, 35, 39, and 40 depend either directly or indirectly from claims 3 and 34 and therefore would be allowable for the aforementioned deficiencies in the rejection with respect to claims 3 and 14 and for the specific limitations recited in claims 7, 8, 35, 39, and 40.

3. 35 U.S.C. §103 rejection of claims 9 and 14-16.

Claims 9 and 14-16 were rejected under 35 U.S.C. §103 as being obvious over Wnuk et al. in view of Buchanan et al. and Noda et al. and further in view of U.S. Patent No. 6,607,994 to Soane et al.

Claim 9 depends directly from claim 3 and recites that the biodegradable fiber is cotton. Claim 9 is allowable over Wnuk et al. in view of Buchanan et al., Noda et al., and Soane because of the aforementioned deficiencies with in the rejection with respect to claim 3 and because of the specific limitations recited in claim 9.

Claim 14 depends directly from claim 1. Claim 14 recites the biodegradable material comprises a filler material. Claim 14 is patentable over Wnuk et al. in view of Buchanan et al., Noda et al., and Soane et al. because of the aforementioned deficiencies in the rejection with respect to claims 1. Additionally, claim 14 is patentable over Wnuk et al. in view of Buchanan et al., Noda et al., and Soane et al. because Soane et al. neither teach nor suggest that the addition of a filler increases the biodegradability of the material as suggested by the Office Action or that it is desirable to increase the biodegradability of the material. With respect to this statement in the Office Action, the Applicants respectfully request that the Examiner identify where in Soane et al. it is suggested that adding a filler to a blend of PHAs and other polymers as taught in Wnuk et al. and Buchanan et al. increases biodegradability or at the very least can be used with such blend of PHAs and other polymers. Absent some support for the Office Action's motivation to combine the references, such as some teaching in the references themselves, the Office Actions' motivations for combining the references are, at best, mere speculation, which cannot be used as a basis for the rejection.

Thus, Wnuk et al. in view of Buchanan et al., Noda et al., and Soane do not teach all the limitations of claim 14 and withdrawal of the rejections of claim 14 is respectfully requested.

Claims 15 and 16 depend either directly or indirectly from claim 14 and therefore would be allowable for the aforementioned deficiencies in the rejection with respect to claim 14 and for the specific limitations recited in claims 15 and 16.

4. 35 U.S.C. §103 rejection of claims 4-6, 36-38, 39 and 41.

Claims 4-6, 36-38, 39 and 41 were rejected under 35 U.S.C. §103 as being obvious over Wnuk in view of Buchanan and Noda and further in view of Soane.

Claims 4-6, 36-38, 39 and 41 were rejected under 35 U.S.C. §103 as being obvious over Wnuk et al. in view of Buchanan et al. and Noda et al. and further in view of Soane et al.

Claim 4 depends directly from claim 3 and recites that the biodegradable fiber comprises a continuous or discontinuous fiber. Claim 4 is allowable over Wnuk et al. in view of Buchanan et al., Noda et al., and Soane because of the aforementioned deficiencies with in the rejection with respect to claim 3 and because of the specific limitations recited in claim 4.

Claims 5 and 6 also depend directly from claim 3 and contain similar limitations as claim 3 and therefore should be allowable for the aforementioned deficiencies of the rejection with respect to claim 3 and for the specific limitations recited in claims 5 and 6.

Claims 36-38 contain limitations similar to claims 4, 5, and 6 and therefore should be allowable because of the aforementioned deficiencies of the rejection with respect to claims 4, 5 and 6 and because of the specific limitations recited in claims 36-38.

Claims 39 and 41 depend either directly or indirectly from claim 34 and therefore would be allowable for the aforementioned deficiencies in the rejection with respect to claim 34 and for the specific limitations recited in claims 39 and 41.

5. 35 U.S.C. §103 rejection of claims 17, 27-31, and 42-46.

Claims 17, 27-31, and 42-46 were rejected under 35 U.S.C. §103 as being unpatentable over Wnuk in view of U.S. Patent No. 6,455,449 to Veiga et al.

Claim 17 recites a vehicle occupant protection apparatus that comprises a reaction canister and an inflatable vehicle occupant protection device contained in the reaction canister. At least one of the reaction canister and the inflatable vehicle occupant protection device is biodegradable and comprises a biodegradable material. The biodegradable material is formed as at least one of a fiber, a continuous matrix, a filler, or a cellular material. The fiber, the continuous matrix, the filler, or the cell material consists essentially of a polyhydroxyalkanoate resin, the polyhydroxyalkanoate resin being a homo-polymer or copolymer of hydroxyalkanoate monomer units selected from the group consisting of 3-hydroxybutyrate, 3-hydroxyvalerate, 3-hydroxyoctanoate, 4-hydroxybutyrate, 5,5-hydroxyvalerate, 5-hydroxycaproate, 6-hydroxycaproate, 6-hydroxycaprylate, and 6-hydroxypropionate.

Claim 17 is patentable over Wnuk et al. and Veiga et al. because Wnuk et al. and Veiga et al. do not teach or suggest a biodegradable material is formed as at least one of a fiber, a continuous matrix, a filler, or a cellular material, the fiber, the continuous matrix, the filler, or the cell material consisting essentially of a polyhydroxyalkanoate resin.

Wnuk et al. teach polymer compositions that are derived from blends of various biodegradable polymers. (Column 20, lines 21-22). These polymer compositions can be melt processed into films, fibers, and non-wovens. (Abstract). The polymer compositions include a polyhydroxyalkanoate (PHA) polymer that is blended with another polymer. Column 24, lines 3-5 and column 26, third complete paragraph, both noted in the Office Action, describe formulations of various blends of PHAs and other polymers. Wnuk et al. do not teach or suggest that the films, fibers, and non-wovens are formed from polymer compositions "consisting essentially of a polyhydroxyalkanoate resin".

The transition phrase "consists essentially of" as discussed in the MPEP at section 2111.03 limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristics of the claimed invention. (emphasis added in the MPEP). The polymers blended with the PHAs taught in Wnuk et al., however, affect the basic and novel characteristics of the PHAs. Particularly, column 24, lines 3-5, which are noted in the Office Action, suggest the additional polymer imparts melt strength to the PHA it is blended with. Thus, films, fibers, and non-wovens taught in Wnuk et al. are formed from a blend of polymers a portion of which is not a polyhydroxyalkanoate; and, therefore, such fibers, films, and non-wovens taught in Wnuk et al. do not consist essentially of a polyhydroxyalkanoate.

Veiga et al. teach nothing about PHAs or suggests PHAs can be used in the fabrication of a reaction canister or an inflatable vehicle occupant protection device.

Thus, Wnuk et al. in view of Veiga et al. fail to teach or suggest all of the limitations of claim 17 therefore withdrawal of the rejection of claim 17 is respectfully requested.

Claims 27-31 depend either directly or indirectly from claim 17 and therefore should be allowable because of the aforementioned deficiencies of the rejection with respect to claim 17 and for the specific limitations recited in claims 27-31.

Claims 42-46 contain similar limitations as claims 27-31 and therefore should be allowable because of the aforementioned deficiencies of the rejection with respect to claim 2-31 and for the specific limitations recited in claims 42-46.

6. 35 U.S.C. §103 rejection of claim 19.

Claim 19 was rejected under 35 U.S.C. §103 as being obvious over Wnuk et al. in view of Veiga et al., and further in view of Buchanan et al.

Claim 19 depends from claim 17 and further recites that the reaction canister is biodegradable and comprises a polyhydroxyalkanoate resin.

Claim 19 is patentable over Wnuk et al. in view of Veiga et al., and further in view of Buchanan et al. because Wnuk et al. in view of Veiga et al. and Buchanan et al. do not teach or suggest a biodegradable material is formed as at least one of a fiber, a continuous matrix, a filler, or a cellular material, the fiber, the continuous matrix, the filler, or the cell material consisting essentially of a polyhydroxyalkanoate resin..

As noted above with respect to claim 1, Wnuk et al. and Buchanan et al. teach PHA blended with other polymers can be used to form fibers, films, and non-wovens and do not teach or suggest fibers, continuous matrix, fillers, or cellular material consisting essentially of a polyhydroxyalkanoate resin. Moreover, as noted above with claim 17, Veiga et al. do not teach PHAs. Therefore, Wnuk et al. in view of Buchanan et. al. and Veiga et al. do not teach all of the limitations Claim 19. Therefore, withdrawal of the rejection of claim 19 is respectfully requested.

7. 35 U.S.C. §103 rejection of claims 20, 24, and 25.

Claims 20, 24, and 25 were rejected under 35 U.S.C. §103 as being obvious over Wnuk in view of Veiga, Buchanan, and further in view of Noda.

Claim 20 depends from claim 19 and further recites that the reaction canister is made from a composite. The composite comprises a continuous matrix of the polyhydroxyalkanoate resin reinforced with a biodegradable fiber.

Claim 20 is allowable over Wnuk in view of Veiga, Buchanan, and further in view of Noda because of the aforementioned deficiencies in the rejection with respect to claim 19. Additionally, claims 20 is allowable over Wnuk et al. in view of Veiga, Buchanan, and further in view of Noda because Noda et al. neither teach nor suggest that the addition of a biodegradable fiber increases the biodegradability of the material as suggested by the Office Action or that it is desirable to increase the biodegradability of the material. Once again with respect to this statement in the Office Action, the Applicants respectfully request that the Examiner identify where in Noda et al. it is

suggested that adding biodegradable fiber to a blend of PHAs and other polymers as taught in Wnuk et al. and Buchanan et al. increases biodegradability or at the very least can be used with such blend of PHAs and other polymers.

Claims 24 and 25 depend respectfully from claim 20 and therefore are allowable because of the aforementioned deficiencies in the rejection with respect to claim 20 and for the specific limitations recited in claims 24 and 25.

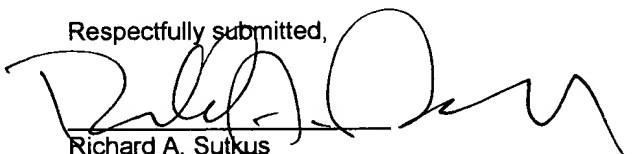
8. 35 U.S.C. §103 rejection of claims 21-23 and 26.

Claims 21-23 and 26 were rejected under 35 U.S.C. §103 as being obvious over Wnuk in view of Veiga, Buchanan, and Noda, and further in view of Soane.

Claims 21-23 and 26 depend either directly or directly from claim 20 and therefore should be allowable because of the aforementioned deficiencies in the rejection with respect to claim 20 and the specific limitations recited in claims 21-23 and 26.

In view of the foregoing, it is respectfully submitted that the above-identified application is in condition for allowance, and allowance of the above-identified application is respectfully requested.

Respectfully submitted,



Richard A. Sutkus  
Reg. No. 43,941

TAROLLI, SUNDHEIM, COVELL  
& TUMMINO, L.L.P.  
526 Superior Avenue – Suite 1111  
Cleveland, Ohio 44114-1400  
Phone: (216) 621-2234  
Fax: (216) 621-4072

Customer No.: 26294